Author Index

Sewage Works Journal, Volume XI, 1939

ARTICLES

Allton, Robert A. Comments on Sewer Rentals 276

Baity, Herman G. See Porges, Ralph.
BANKSON, E. E. Discussion of Paper by Francis S. Friel, entitled "Application of Sewerage Finance Methods" 796
BARNETT, G. R. Use of Sodium Azide in the Winkler Method for the Determination of Dissolved Oxygen 781
BROMAGE, JOHN ALDHELM R. The Sewerage of Delhi 489
BUDD, CHESTER B. See Flower, G. E.
BUSHEE, RALPH J. Treatment of Brewery Wastes 295
BUTTERFIELD, C. T. See Ruchhoft, C. C.

Crowley, A. B. See Geiger, J. C.

Dawson, Francis M. See Knechtges, O. J.
Donaldson, Wellington
First Year's Operation at Ward's Island Sewage Treatment Works 100
DUNDAS, WM. The Flash Drying System of Sludge Disposal 1006

Fair, Gordon M. Dissolved Oxygen Sag —An Analysis 445
FLOWER, G. E., BUDD, CHESTER B. AND HAUCK, CHARLES. Solids Balancing .. 480
FORT, E. J. See Liebman, Henry.
FRIEL, FRANCIS S. Application of Sewerage Finance Methods 788

Gehm, Harry W.
Chemical Coagulation of Sewage. XI. Effect of Soluble Matter on Coagulation 738
See Rudolfs, Willem.
GEHM, HARRY W. AND TRUBNICK, EUGENE H. Application of the Photronreflectometer for the Measurement of Turbidity in Sewage 3
GEIGER, J. C., M.D., HYDE, C. G., AND CROWLEY, A. B. A Unique and Effective Determination of the Extent and Degree of Pollution by Sewage of the West and North Shores of the City and County of San Francisco 811
GENTER, A. L. Discussion of Paper by Paul D. McNamee, entitled "Filtration Tests with Elutriated and Unelutriated Digested Solids" 774
GILES, HENRY L. Observations on Operation of Institutional Sewage Treatment Plants 636
GOODMAN, A. H., MICKLE, C. T., POINDEXTER, G. G., AND HAGEMAN, ROY C. Operating Problems in Starting the Southwest Sewage Treatment Works of The Sanitary District of Chicago .. 1020

Hageman, Roy C. See Goodman, A. H.
HANSEN, PAUL, AND HILL, K. V. Packinghouse Wastes and Sewage Treatment at Austin, Minn. 1045
HARDENBERGH, WM. A. Trends in Sewage Treatment 803
HAUCK, CHARLES. See Flower, G. E.
HAWLEY, R. S. Separation and Recovery of Paper Fibre from Waste Mill Water, The— 512
HEINEMANN, BERNARD.
See Heukelekian, H.
See Rudolfs, Willem.
HENDERSON, C. N. See Ridenour, G. M.
HEUKELEKIAN, H. See Ingols, R. S.
HEUKELEKIAN, H., AND HEINEMANN, BERNARD.
Studies on the Methane Producing Bacteria.
I. Development of a Method for Enumeration 426
II. Enumeration in Digesting Sewage Solids 436
III. Digestion of Sewage Sludge by the Addition of Enriched Cultures of Methane Producing Bacteria 571
IV. Growth of Methane-Producing Bacteria in Supernatant Sludge Liquors 965
HEUKELEKIAN, H., AND LITTMAN, M. L. Carbon and Nitrogen Transformations in the Purification of Sewage by the Activated Sludge Process.
I. With Mixtures of Sewage and Activated Sludge 226
II. Morphological and Biochemical Studies of Zoogleal Organisms 752
HILL, K. V. See Hansen, Paul.
HILL, MILTON T. Digestion Studies on Paper Pulp 864
HORTON, ROBERT K. See Porges, Ralph.
HOWSON, L. R. Sewage Treatment at Gary 994
HURWITZ, E. Discussion of Paper by G. R. Barnett entitled, "The Use of Sodium Azide in the Winkler Method for the Determination of Dissolved Oxygen". 784
HYDE, C. G. See Geiger, J. C.

Ingols, R. S. and Heukelekian, H. Studies on Activated Sludge. I. Bulking of Sludge by Means of Carbohydrates 927

Knechtges, O. J., Dawson, Francis M., and Nichols, M. Starr. Continuous Digestion of Mixtures of Sludges from Domestic Sewage and Packinghouse Wastes 819

952199

KRAUS, L. S., AND LONGLEY, J. R. Concentrating Activated Sludge with a Continuous Feed Centrifuge..... 9
KRONBACH, ALLEN J. Handling Papermill Waste in the Monroe Sewage Treatment Plant..... 518

Liebman, Henry, and Fort, E. J. Tallmans Island Sewage Treatment Works 251
LITTMAN, M. L. See Heukelekian, H.
LONGLEY, J. R. See Kraus, L. S.

Mahlie, W. S.
A Comparison of the Performance of Imhoff Tanks Against Primary Settling Tanks..... 68
Trickling Filter Loadings at Fort Worth, Texas..... 472
MCNAMEE, PAUL D.
Filtration Tests with Elutriated and Unelutriated Digested Solids..... 764
See Ruchhoft, C. C.
MICKLE, C. T. See Goodman, A. H.
MILES, HENRY J. See Porges, Ralph.
MOHLMAN, F. W. The Disposal of Industrial Wastes..... 646
MORRILL, ARTHUR B. The Detroit Sewage Treatment Plant..... 609

Nichols, C. M. Discussion of Paper by Ralph Porges *et al*, entitled "Chemical Precipitation of Textile Wastes and Studies of pH Control."..... 857
NICHOLS, M. STARR.
See Knechtges, O. J.
See Sawyer, C. N.

Poindexter, G. G. See Goodman, A. H.
PORGES, RALPH, HORTON, ROBERT K., AND BAITY, HERMAN G. Chemical Precipitation of Textile Wastes and Studies of pH Control..... 828
PORGES, RALPH, AND MILES, HENRY J. Treatment of Sulfur Dye Waste by the Activated Sludge Process. III. Dewatering of Activated Sludge Obtained by Treatment of a Sulfur Dye-Sewage Mixture.....1038

Redfern, W. B. Storm Water Sewer Design..... 85
REYBOLD, D. C. Sludge Drying and Incineration..... 72
RIDENOUR, G. M., AND HENDERSON, C. N. Impounding Reservoir in Stream Purification, with Reference to Sludge Bank Formation..... 498
ROHLICH, GERARD A. See Sawyer, Clair N.
RUCHHOFT, C. C. Studies on Sewage Purification. X. Changes in Characteristics of Activated Sludge Induced by Variations in Applied Load..... 409
RUCHHOFT, C. C., BUTTERFIELD, C. T., MCNAMEE, P. D., AND WATTIE, ELSIE. Studies of Sewage Purification. IX. Total Purification, Oxidation, Adsorption, and Synthesis of Nutrient Substrates by Activated Sludge..... 195
RUDD, WILLIAM C. Mechanical Design of the Detroit Plant. Incinerators and Power Plant..... 618
RUDOLFS, WILLEM, AND GEHM, HARRY W. Colloids in Sewage and Sewage Treatment.
I. Occurrence and Role. A Critical Review..... 727
High and Low Temperature Digestion. VI. Supernatant Liquor Treatment with Chemicals..... 19
RUDOLFS, WILLEM, AND HEINEMANN, BERNARD.
Growth Promoting Substances in Sewage and Sludge.
III. Vitamen C, Carotene, Amino Acids, Fatty Acids and Naphthyl Compounds..... 587
RUDOLFS, WILLEM, *et al.* Research in Sewage Chemistry, Sewage and Waste Treatment and Stream Pollution. A Critical Review of the Literature of 1939..... 159

Sawyer, C. N. Activated Sludge Oxidations. III. Factors Involved in Prolonging the Initial High Rate of Oxygen Utilization by Activated Sludge-Sewage Mixtures..... 595
SAWYER, C. N., AND NICHOLS, M. STARR. Activated Sludge Oxidations.
I. Effect of Sludge Concentration and Temperature Upon Oxygen Utilization..... 51
II. A Comparison of Oxygen Utilization by Activated Sludges Obtained from Four Wisconsin Municipalities..... 462
SAWYER, CLAIR N., AND ROHLICH, GERARD A. Activated Sludge Oxidations. IV. The Influence of Temperature Upon the Rate of Oxygen Utilization by Activated Sludge..... 946
SCHROEPFER, GEORGE J. Sludge Disposal at the Minneapolis-St. Paul Plant... 971
SMITH, ALFRED R. Incineration of Sludge —Some Governing Principles..... 35
SPERRY, WALTER A. Digestion Experiences at Aurora, Ill..... 43
STERLING, CLARENCE I. Status of Sewage Treatment in the Connecticut River Valley..... 624
STUDLEY, E. G. Experimental Ventilation of the North Outfall Sewer of the City of Los Angeles..... 264
SWEENEY, R. C. Sewer Rentals..... 271
SWOPE, H. GLADYS. Chemical Treatment at Waukegan, Ill..... 93

Tatlock, M. W. Financing Sewage Treatment by Sewer Rentals..... 283
TEMPEST, W. F. Sewer Rentals..... 278
THOMPSON, GEORGE R. The Detroit Sewage Disposal Project..... 607
TOBEY, JAMES A. Legal Aspects of Stream Pollution..... 290
TRUBNICK, EUGENE H. See Gehm, Harry W.

Velzy, C. R. Filtration and Incineration at Buffalo..... 988

Wattie, Elsie. See Ruchhoft, C. C.
WESTON, ROBERT SPURR. The Treatment of Textile Wastes..... 657

OPERATORS' REPORTS AND SUGGESTIONS

Baetz, C. O. Sludge Pump Ball Remover. 133
BARKER, STANLEY T.
Three Years Experience with Rating Sewage Treatment Works Operators' Annual Reports..... 522
See Donaldson, Wellington.
BEYER, A. C. Control of Chlorination.... 120
BLOODGOOD, DON E.
Automatic Timing Gadget for Sludge Pumps..... 132
Excerpts from Annual Report of Sewage Disposal and Garbage Reduction.... 542

Campbell, M. S. A. Biological Indicators of Intensity of Stream Pollution..... 123
CHITWOOD, C. S. Tehachapi Sewage Treatment Plant..... 683

Dappert, A. F. See Donaldson, Wellington.
DONALDSON, WELLINGTON, DAPPERT, A. F., AND BARKER, STANLEY T. Revision of Rating Schedule for Rating Annual Reports by Operators of the New York State Sewage Works Association..... 524

Elder, A. L., and Stahl, G. W. The Elder-Stahl Stirrer..... 310
ERICKSON, C. V. Urbana and Champaign Sanitary District, Champaign-Urbana, Ill..... 694

Hastie, James. Eight Years' Experience in Imhoff Tank Operation..... 127
HATFIELD, W. D. The Decatur Stirrer.... 312
HENDRICKS, J. L. Crucible Holder..... 133
HOLFELDER, J. Sewage Works Improvements for the City of Bakersfield.... 685
HOTCHKISS, HENRY T., JR. Hotchkiss Stirrer..... 689
HUFFER, E. A. Filing Rack of Record Charts..... 134
HURWITZ, E.
The Chicago Stirrer..... 308
Turbidimeter..... 134
HUTH, NORMAN A. The Visalia Plant.... 677

Johnson, Glen. The Delano Plant..... 680
JOHNSON, HERBERT O. Belgrave Sewer District Sedimentation and Separate Sludge Digestion..... 129
JONES, H. H. Sludge Gas Engine Operation at Michigan City, Indiana.....1074

Kunsch, Walter E. Excerpt from Report on the Danbury, Conn., Sewage Treatment Plant for the Year Ending June 30, 1938..... 314

Lamb, Miles. First Report of the Belvidere Sewage Treatment Department, Belvidere, Ill., 1938..... 897
LIVINGSTONE, BARD. Packing for Pumps.. 117

Mathews, Tipton. Small Sewage Treatment Plants in California. Wascoe... 675
MORGAN, L. S. Good Housekeeping..... 877
MULDOON, JOSEPH A. Fine Screening of Sewage.....1054

Nalefski, L. A. The Nalefski Stirrer..... 309

Schroepfer, George J. Excerpts from Minneapolis-St. Paul Sanitary District Report for 1938.....1078
SEARIGHT, GEORGE P. Discussion of article by L. S. Morgan, entitled "Good Housekeeping"..... 883
SWOPE, H. GLADYS. The Waukegan Stirrer. 314

Tatlock, M. W. Laboratory Control of Sewage Treatment..... 887

Velzy, Charles R., and Symons, G. E. Extract from First Annual Report of the Buffalo Sewer Authority, 1938–1939.....1083

West, Leslie E. The Joint Meeting for Sewage Disposal of Certain Municipalities in Essex and Union Counties, N. J. Excerpts from Report for 1938.1067

REVIEWS AND ABSTRACTS

Ball, Lawrence J. Sewage Disposal Schemes..... 334
BARRITT, N. W. The Purification of Dairy Waste Waters..... 560
BENSON, H. K. See Skewes, T. J.
BLACK, E. B. Sewage Disposal at Denver, Colorado..... 153
BOVRIE, E. F. Design, Construction and Operation of the Melbourne Sewerage System..... 566

Calvert, H. T.
Present Trend in Sewage Purification.. 340
Report of the (British) Water Pollution Research Board for the Year ended 30th June, 1938.....1097

Davis, Dewi. Disposal of Milk Wastes and Milk By-Products..... 150
DICKINSON, DENIS
Application of Fluorescent Indicators to the Acidimentry of Trade Effluents..1101
System Activated Sludge/Oxygenated Water.....1102

Eldridge, E. F.
Cheese Factory Waste Treatment by the Guggenheim Process..... 710
Fill and Draw Sedimentation Plant for Tannery Waste..... 711
Industrial Waste Treatment Processes and Plant Design..... 562
Treatment of Red Beet, Tomato and Squash Waste..... 712
ESCRITT, L. B. Ventilation of Sewers..... 914

Finch, John. The Dilution of Crude Sewage..... 710
FINCH, J. W. Disposal of Air-Dried Sewage Sludge as a Manure..... 559
FISHER, L. M. Effects of Industrial Wastes and Sewage on Shell Fish and Fin Fish..... 151
FOLKES, H. LORAIN. Some Recent Developments in Settling Tanks..... 149

Halvorson, Orin. See Piret, Edgar L.
HAMLIN, E. J. City of Johannesburg, Annual Report, 1938 566
HAMMERTON, C. The Sewage Disposal System of Cairo 717
HAWORTH, W. D. A Review of Progress in Sewage Treatment 343
HESS, SETH G. Pollution and the Pocketbook 913
HOLTHÖFER, H. See Sierp, F.
HUBBELL, CLARENCE W. The Detroit Sewage Treatment Plant 152, 337
HUNTER, ALEXANDER. Annual Report on the Sewage Purification Works for the Year Ended May 31, 1938, Corporation of Glasgow, Scotland 336
HURLEY, JOHN. Trade Effluents. I. Past and Present Legislation 344
HURLEY, J., AND LOVETT, M. The Purification of Sewage on Covered Filters ... 146

Imhoff, Karl. Handbook on Sewage Disposal 723

Jenks, Harry A. Rapid Biologic Filters for a Sewage Plant 915

Kessener, H. Annual Report of the Commission for Pollution and Government Institute of Sewage and Waste Purification, Years, 1936 and 1937 154

Lovett, M. See Hurley, J.

Mann, Charles A. See Piret, Edgar L.
MARSLAND, G. GOULD. Cheltenham's Remodelled Sewage Disposal Works 1100
MCNICHOLAS, J. Neutralization of Acid Trade Effluents 559
MOHLMAN, F. W. Brewery Wastes 721
MONK, H. E.
Some Chemical and Bacteriological Properties of Trade Wastes Containing Chromium 920
Some Chemical and Bacteriological Properties of Trade Wastes Containing Chromates 1099
MOORE, W. ALLAN. See Ruchhoft, C. C.
MORRILL, ARTHUR B. Detroit Primary Treatment Plant Nears Completion .. 336

Nichols, M. Starr. Uses and Abuses of the Biochemical Oxygen Demand 918

Parker, A. Treatment and Disposal of Sewage and Trade Waste Waters and Prevention of River Pollution 342
PERLEY G. A.
Determination of Dissolved Oxygen in Aqueous Solutions 917
PIRET, EDGAR L., MANN, CHARLES A., AND HALVORSON, ORIN. Aerodynamics of Trickling Filters 916
PLACAK, R. See Ruchhoft, C. C.
POUQUET, F. Sewage Purification in the Parisian Area. Construction of a Biological Sewage Treatment Works at Acheres 719

Reynoldson, T. B. The Role of Macro-Organisms in Bacteria Beds 709
RUCHHOFT, C. C., MOORE, W. ALLAN, AND PLACAK, O. R. Determination of Dissolved Oxygen 338

Schroepfer, George J. Final Report on Incinerator Acceptance Tests, Minneapolis-St. Paul Sanitary District 922
SIERP, F., SPLITTGERBER, A., AND HOLTHÖFER, H. Technologie Des Wassers . 724
SKEWES, T. J., AND BENSON, H. K. Oxalic Acid from Sulfite Waste Liquor 921
SPENCER, J. H. Treatment of Chromium Plating Wastes 920
SPLITTGERBER, A. See Sierp, F.
STECHER, EUSTACHIUS. Brewery Wastes .. 720

Tomlinson, T. G. The Biology of Sewage Purification 710

Ward, A. R. The Kessener Brush Aeration Process 332
WEICKER, GEORG. Artificial Lake for the Purification of River Water at Glauchau, Saxony 716

Subject Index

Sewage Works Journal, Volume XI, 1939

ARTICLES

Activated Sludge

Bulking of Sludge by Means of Carbohydrates. *R. S. Ingols and H. Heukelekian* 927

Carbon and Nitrogen Transformations in the Purification of Sewage by the Activated Sludge Process. I. With Mixtures of Sewage and Activated Sludge. *H. Heukelekian and M. L. Littman* 226

II. Morphological and Biochemical Studies of Zoogleal Organisms. *H. Heukelekian and M. L. Littman* ... 752

Comparison of Oxygen Utilization by Activated Sludges Obtained from Four Wisconsin Municipalities. *C. N. Sawyer and M. Starr Nichols* 462

Concentrating Activated Sludge with a Continuous Feed Centrifuge. *L. S. Kraus and J. R. Longley* 9

Effect of Sludge Concentration and Temperature Upon Oxygen Utilization. *C. N. Sawyer and M. Starr Nichols* 51

Factors Involved in Prolonging the Initial High Rate of Oxygen Utilization by Activated Sludge-Sewage Mixtures. *C. N. Sawyer* 595

Influence of Temperature Upon the Rate of Oxygen Utilization by Activated Sludges. *Clair N. Sawyer and Gerard A. Rohlich* 946

Sewage Purification Studies. IX. Total Purification, Oxidation, Adsorption and Synthesis of Nutrient Substrates by Activated Sludge. *C. C. Ruchhoft, C. T. Butterfield, P. D. McNamee and Elsie Wattie* 195

X. Changes in Characteristics of Activated Sludge Induced by Variations in Applied Load. *C. C. Ruchhoft* 409

Treatment of Sulfur Dye Waste by the Activated Sludge Process. III. Dewatering of Activated Sludge Obtained by Treatment of a Sulfur Dye-Sewage Mixture. *Ralph Porges and Henry J. Miles* 1038

Activated Sludge Oxidations.

I. Effect of Sludge Concentration and Temperature Upon Oxygen Utilization. *C. N. Sawyer and M. Starr Nichols* 51

II. Comparison of Oxygen Utilization by Activated Sludges Obtained from Four Wisconsin Municipalities. *C. N. Sawyer and M. Starr Nichols* 462

III. Factors Involved in Prolonging the Initial High Rate of Oxygen Utilization by Activated Sludge-Sewage Mixtures. *C. N. Sawyer* ... 595

IV. The Influence of Temperature Upon the Rate of Oxygen Utilization by Activated Sludge. *Clair N. Sawyer and Gerard A. Rohlich* 946

Application of the Photronreflectometer for the Measurement of Turbidity in Sewage. *Harry W. Gehm and Eugene H. Trubnick* 3

Application of Sewerage Finance Methods. *Francis S. Friel* 788

Discussion by E. E. Bankson 796

Aurora, Illinois, Digestion Experiences at—. *Walter A. Sperry* 43

Austin, Minn. Packinghouse Wastes and Sewage Treatment at—. *Paul Hansen and K. V. Hill* 1045

Brewery Wastes, Treatment of —. *Ralph J. Bushee* 295

Buffalo, Filtration and Incineration at—. *C. R. Velzy* 988

Carbon and Nitrogen Transformations in the Purification of Sewage by the Activated Sludge Process.

I. With Mixtures of Sewage and Activated Sludge. *H. Heukelekian and M. L. Littman* 226

II. Morphological and Biochemical Studies of Zoogleal Organisms. *H. Heukelekian and M. L. Littman* 752

Centrifuge, Concentrating Activated Sludge with a Continuous Feed—. *L. S. Kraus and J. R. Longley* 9

CHEMICAL TREATMENT

Chemical Coagulation of Sewage. XI. Effect of Soluble Matter on Coagulation. *Harry W. Gehm* 738

Chemical Precipitation of Textile Wastes and Studies of pH Control. *Ralph Porges, Robert K. Horton, and Herman G. Baity* 828

Discussion by C. M. Nichols 857

Research Committee Report for 1939. *W. Rudolfs, Chairman* 159

Waukegan, Ill. *H. Gladys Swope* 93

Chicago, The Sanitary District of—, Operating Problems in Starting the Southwest Sewage Treatment Works.

Introduction. *A. H. Goodman* 1020

Treatment Problems. *C. T. Mickle* 1020

Chemical Control. *G. G. Poindexter* 1025

Mechanical Organization. *Roy C. Hageman* 1030

Colloids in Sewage and Sewage Treatment

I. Occurrence and Role. A Critical Review. *Willem Rudolfs and Harry W. Gehm* 727

Comparison of the Performance of Imhoff Tanks Against Primary Settling Tanks, A—. *W. S. Mahlie* 68

Concentrating Activated Sludge with a Continuous Feed Centrifuge. *L. S. Kraus and J. R. Longley* 9

Connecticut River Valley, Status of Sewage Treatment in the—. *Clarence I. Sterling* 624
Continuous Digestion of Mixtures of Sludges from Domestic Sewage and Packinghouse Wastes. *O. J. Knechtges, Francis M. Dawson, and M. Starr Nichols* 819

Delhi, The Sewerage of—. *John Aldhelm R. Bromage* 489
Detroit Sewage Disposal Project. *George R. Thompson* 607
Arthur B. Morrill 609
William C. Rudd 618
Digestion Studies on Paper Pulp. *Milton T. Hill* 864
Disposal of Industrial Wastes. *F. W. Mohlman* 646
Dissolved Oxygen, The Use of Sodium Azide in the Winkler Method for the Determination of—. *G. R. Barnett* ... 781
Discussion by E. Hurwitz 784
Dissolved Oxygen Sag, The—. An Analysis. *Gordon M. Fair* 445

Effect of Sludge Concentration and Temperature Upon Oxygen Utilization. Activated Sludge Oxidations. *C. N. Sawyer and M. Starr Nichols* 51
Experimental Ventilation of the North Outfall Sewer of the City of Los Angeles. *E. G. Studley* 264

Filtration and Incineration at Buffalo. *C. R. Velzy* 988
Filtration Tests with Elutriated and Unelutriated Digested Solids. *Paul D. McNamee* 764
Discussion by *A. L. Genter* 774
Finance Methods, Application of Sewerage—. *Francis S. Friel* 788
Discussion by E. E. Bankson 796
First Year's Operation at Wards Island Sewage Treatment Works. *Wellington Donaldson* 100
Flash Drying System of Sludge Disposal, The—. *Wm. Dundas* 1006
Fort Worth, Texas, Trickling Filter Loadings at—. *W. S. Mahlie* 472

Gary, Ind., Sewage Treatment at —. L. *R. Howson* 994
Growth Promoting Substances in Sewage and Sludge. III. Vitamin C, Carotene, Amino Acids, Fatty Acids and Naphthyl Compounds. *Willem Rudolfs and Bernard Heinemann* 587

Handling Papermill Waste in the Monroe Sewage Treatment Plant. *Allen J. Kronbach* 518
High and Low Temperature Digestion. VI. Supernatant Liquor Treatment with Chemicals. *Willem Rudolfs and Harry W. Gehm* 19

Imhoff Tanks. Comparison of the Performance of Imhoff Tanks Against Primary Settling Tanks, A—. *W. S. Mahlie* 68
Impounding Reservoir in Stream Purification, with Reference to Sludge Bank Formation. *G. M. Ridenour and C. N. Henderson* 498
Incineration of Sludge—Some Governing Principles. *Alfred R. Smith* 35
INDUSTRIAL WASTES
Chemical Precipitation of Textile Wastes and Studies of pH Control. *Ralph Porges, Robert K. Horton, and Herman G. Baity* 828
Discussion by C. M. Nichols 857
Continuous Digestion of Mixtures of Sludges from Domestic Sewage and Packinghouse Wastes. *O. J. Knechtges, Francis M. Dawson and M. Starr Nichols* 819
Digestion Studies on Paper Pulp. *Milton T. Hill* 864
Disposal of Industrial Wastes. *F. W. Mohlman* 646
Handling Papermill Waste in the Monroe Sewage Treatment Plant. *Allen J. Kronbach* 518
Packinghouse Wastes and Sewage Treatment at Austin, Minn. *Paul Hansen and K. V. Hill* 1045
Research Committee Report for 1939. *W. Rudolfs, Chairman* 159
Separation and Recovery of Paper Fibre from Waste Mill Water. *R. S. Hawley* 512
Treatment of Brewery Wastes. *Ralph J. Bushee* 295
Treatment of Sulfur Dye Waste by the Activated Sludge Process. III. Dewatering of Activated Sludge Obtained by Treatment of a Sulfur Dye-Sewage Mixture. *Ralph Porges and Henry J. Miles* 1038
Treatment of Textile Wastes. *Robert Spurr Weston* 657
Institutional Sewage Treatment Plants, Observations on Operation of—. *Henry L. Giles* 636

Legal Aspects of Stream Pollution. *James A. Tobey* 290
Los Angeles, Experimental Ventilation of the North Outfall Sewer of the City of—. *E. G. Studley* 264

Mechanical Design of the Detroit Plant. Incinerators and Power Plant. *William C. Rudd* 618
Methane Producing Bacteria, Studies on the—.
I. Development of a Method for Enumeration. *H. Heukelekian and Bernard Heinemann* 426
II. Enumeration in Digesting Sewage Solids. *H. Heukelekian and Bernard Heinemann* 436
III. Digestion of Sewage Sludge by the Addition of Enriched Cultures of Methane Producing Bacteria. *H. Heukelekian and Bernard Heinemann* 571
IV. Growth of Methane-Producing Bacteria in Supernatant Sludge Liquors. *H. Heukelekian and Bernard Heinemann* 965
Minneapolis-St. Paul Plant, Sludge Disposal at—. *George J. Schroepfer* 971

Monroe Sewage Treatment Plant, Handling Papermill Waste in the—. *Allen J. Kronbach*..... 518

Observations on Operation of Institutional Sewage Treatment Plants. *Henry L. Giles*..... 636
Operating Problems in Starting the Southwest Sewage Treatment Works of The Sanitary District of Chicago.
Introduction. *A. H. Goodman*.....1020
Treatment Problems. *C. T. Mickle*.....1020
Chemical Control. *G. G. Poindexter*....1025
Mechanical Organization. *Roy C. Hageman*.....1030

Packinghouse Wastes and Sewage Treatment at Austin, Minn. *Paul Hansen and K. V. Hill*.....1045

Research. Review of Literature for 1939. *W. Rudolfs, Committee Chairman*.... 159

San Francisco, A Unique and Effective Determination of the Extent and Degree of Pollution by Sewage of the West and North Shores of the City and County of—. *J. C. Geiger, M.D., C. G. Hyde and A. B. Crowley*..... 811
Separation and Recovery of Paper Fibre from Waste Mill Water. *R. S. Hawley* 512
SETTLING TANKS. Comparison of the Performance of Imhoff Tanks Against Primary Settling Tanks, A—. *W. S. Mahlie*..... 68
SEWAGE
Colloids in Sewage and Sewage Treatment. I. Occurrence and Role. A Critical Review. *Willem Rudolfs and Harry W. Gehm*..... 727
Growth Promoting Substances in Sewage and Sludge. III. Vitamin C, Carotene, Amino Acids, Fatty Acids and Naphthyl Compounds. *Willem Rudolfs and Bernard Heinemann*..... 587
Measurement of Turbidity in, by the Application of the Photronreflectometer. *Harry W. Gehm and Eugene H. Trubnick*..... 3
Sewage Treatment at Gary, Ind. *L. R. Howson*..... 994
Sewage Treatment, Trends in—. *Wm. A. Hardenbergh*..... 803
SEWAGE TREATMENT WORKS
Detroit. *George R. Thompson*..... 607
Detroit. *Arthur B. Morrill*..... 609
Detroit. *William C. Rudd*..... 618
Tallmans Island. *Henry Liebman and E. J. Fort*..... 251
Wards Island. *Wellington Donaldson*.... 100
Sewerage of Delhi, The—. *John Aldhelm R. Bromage*..... 489
SEWER RENTALS
Symposium on—. I. Sewer Rentals. *R. C. Sweeney*..... 271
II. Comments on Sewer Rentals. *Robert A. Allton*..... 276
III. Sewer Rentals. *W. F. Tempest*..... 278
IV. Financing Sewage Treatment by Sewer Rentals. *M. W. Tatlock*..... 283
SEWERS
Experimental Ventilation of the North Outfall Sewer of the City of Los Angeles. *E. G. Studley*..... 264
Storm Water Sewer Design. *W. B. Redfern*..... 85
SLUDGE
Drying and Incineration. *D. C. Reybold*. 72
Filtration Tests with Elutriated and Unelutriated Digested Solids. *Paul D. McNamee*..... 764
Discussion by A. L. Genter..... 774
Flash Drying System of Sludge Disposal. *Wm. Dundas*.....1006
Growth Promoting Substances in Sewage and Sludge. III. Vitamin C, Carotene, Amino Acids, Fatty Acids and Naphthyl Compounds. *Willem Rudolfs and Bernard Heinemann*..... 587
Incineration—Some Governing Principles. *Alfred R. Smith*..... 35
Mechanical Design of the Detroit Plant. Incinerators and Power Plant. *William C. Rudd*..... 618
Sludge Disposal at the Minneapolis-St. Paul Plant. *George J. Schroepfer*..... 971
SLUDGE DIGESTION
Continuous Digestion of Mixtures of Sludges from Domestic Sewage and Packinghouse Wastes. *O. J. Knechtges, Francis M. Dawson and M. Starr Nichols*..... 819
Experiences at Aurora, Ill. *Walter A. Sperry*..... 43
High and Low Temperature Digestion. VI. Supernatant Liquor Treatment with Chemicals. *Willem Rudolfs and Harry W. Gehm*..... 19
Sludge Drying and Incineration. *D. C. Reybold*..... 72
Solids Balancing. *G. E. Flower, Chester B. Budd and Charles Hauck*..... 480
Status of Sewage Treatment in the Connecticut River Valley. *Clarence I. Sterling*..... 624
Storm Water Sewer Design. *W. B. Redfern* 85
STREAM POLLUTION
Impounding Reservoir in Stream Purification, with Reference to Sludge Bank Formation. *G. M. Ridenour and C. N. Henderson*..... 498
Legal Aspects of Stream Pollution. *James A. Tobey*..... 290
Research Committee Report for 1939. *W. Rudolfs, Chairman*..... 159
Studies of Sewage Purification.
IX. Total Purification, Oxidation, Adsorption and Synthesis of Nutrient Substrates by Activated Sludge. *C. C. Ruchhoft, C. T. Butterfield, P. D. McNamee and Elsie Wattie*..... 195
X. Changes in Characteristics of Activated Sludge Induced by Variations in Applied Load. *C. C. Ruchhoft*..... 409
Studies on Activated Sludge. I. Bulking of Sludge by Means of Carbohydrates. *R. S. Ingols and H. Heukelekian*..... 927
Studies on the Methane Producing Bacteria.
I. Development of a Method for Enumeration. *H. Heukelekian and Bernard Heinemann*..... 426
II. Enumeration in Digesting Sewage Solids. *H. Heukelekian and Bernard Heinemann*..... 436

III. Digestion of Sewage Sludge by the Addition of Enriched Cultures of Methane Producing Bacteria. *H. Heukelekian and Bernard Heinemann* 571
IV. Growth of Methane-Producing Bacteria in Supernatant Sludge Liquors. *H. Heukelekian and Bernard Heinemann* 965

Tallmans Island Sewage Treatment Works. *Henry Liebman and E. J. Fort* 251

Textile Wastes, Chemical Precipitation of—, and Studies of pH Control. *Ralph Porges, Robert K. Horton, and Herman G. Baity* 828
Textile Wastes, Treatment of—. *Robert Spurr Weston* 657
Treatment of Brewery Wastes. *Ralph J. Bushee* 295
Treatment of Sulfur Dye Waste by the Activated Sludge Process. III. Dewatering of Activated Sludge Obtained by Treatment of a Sulfur Dye-Sewage Mixture. *Ralph Porges and Henry J. Miles* 1038
Treatment of Textile Wastes. *Robert Spurr Weston* 657
Trends in Sewage Treatment. *Wm. A. Hardenbergh* 803
TRICKLING FILTERS
Trickling Filter Loadings at Fort Worth, Texas. *W. S. Mahlie* 472
Turbidity in Sewage, Application of the Photronreflectometer for the Measurement of—. *Harry W. Gehm and Eugene H. Trubnick* 3

Unique and Effective Determination of the Extent and Degree of Pollution by Sewage of the West and North Shores of the City and County of San Francisco. *J. C. Geiger, M.D., C. G. Hyde and A. B. Crowley* 811
Use of Sodium Azide in the Winkler Method for the Determination of Dissolved Oxygen. *G. R. Barnett* 781
Discussion by E. Hurwitz 784

Wards Island Sewage Treatment Works. First Year's Operation at—. *Wellington Donaldson* 100
Waukegan, Illinois, Chemical Treatment at—. *H. Gladys Swope* 93

OPERATORS' REPORTS AND SUGGESTIONS

Annual Reports
Belvidere, Ill. *Miles Lamb* 897
Buffalo Sewer Authority, 1938–39. *Charles R. Velzy and G. E. Symons* 1083
Danbury, Conn. *Walter E. Kunsch* 314
Essex and Union Counties, N. J. *Leslie E. West* 1067
Indianapolis, Ind. *D. E. Bloodgood* 542
Minneapolis-St. Paul Sanitary District Report for 1938. *George J. Schroepfer* 1078
Urbana-Champaign, Ill. *C. V. Erickson* 694

Bakersfield, Sewage Works Improvements for the City of—. *J. Holfelder* 685

Belgrave Sewer District Sedimentation and Separate Sludge Digestion. *Herbert O. Johnson* 129
Belvidere, Illinois, First Report of the Belvidere Sewage Treatment Department, 1938. *Miles Lamb* 897
Biological Indicators of Intensity of Stream Pollution. *M. S. A. Campbell* 123
Buffalo Sewer Authority, 1938–39, Extract from First Annual Report of the—. *Charles R. Velzy and G. E. Symons* 1083

Chlorination, Control of—. *A. C. Beyer* 120

Danbury, Conn., Sewage Treatment Plant, Excerpt from the Report for the Year Ending June 30, 1938. *Walter F. Kunsch* 314
Delano Sewage Treatment Plant. *Glen Johnson* 680

Essex and Union Counties, N. J., The Joint Meeting for Sewage Disposal of Certain Municipalities in—. Excerpts from Report for 1938. *Leslie E. West* 1067

Fine Screening of Sewage. *Joseph A. Muldoon* 1054

Gadgets
Automatic Timing Gadget for Sludge Pumps. *D. E. Bloodgood* 132
Crucible Holder. *J. L. Hendricks* 133
Filing Rack of Record Charts. *E. A. Huffer* 134
Sludge Pump Ball Remover. *C. O. Baetz* 133
Turbidimeter. *E. Hurwitz* 134
Good Housekeeping. *L. S. Morgan* 877
Discussion. George P. Searight 883

Imhoff Tank Operation, Eight Years' Experience in—. *James Hastie* 127
Indianapolis, Indiana, Excerpts from Annual Report of Sewage Disposal and Garbage Reduction. *D. E. Bloodgood* 542

Laboratory Control of Sewage Treatment. *M. W. Tatlock* 887
Laboratory Stirrers 308, 689

Michigan City, Ind., Sludge Gas Engine Operation at—. *H. H. Jones* 1074
Minneapolis-St. Paul Sanitary District Report, Excerpts from—. *George J. Schroepfer* 1078

Operators' Suggestions to Designing Engineers 892

Packing for Pumps. *Bard Livingstone* 117

Rating Annual Reports by Operators of the New York State Sewage Works Association, Revision of Rating Schedule for—. *Wellington Donaldson, A. F. Dappert, and Stanley T. Barker* 524
Rating Sewage Treatment Works Operators' Annual Reports, Three Years Experience with—. *Stanley T. Barker*. 522
Rating Schedule 529

Revision of Rating Schedule for Rating Annual Reports by Operators of the New York State Sewage Works Association. *Wellington Donaldson, A. F. Dappert and Stanley T. Barker*..... 524

Sewage, Fine Screening of—. *Joseph A. Muldoon*.....1054
Sewage Treatment Operation Costs..... 690
Sludge Gas Engine Operation at Michigan City, Ind. *H. H. Jones*.....1074
"Small Plant Operators' Clinic." Central States Sewage Works Association....1076
Small Sewage Treatment Plants in California.
Bakersfield, Cal. *J. Holfelder*..... 685
Delano, Cal. *Glen Johnson*..... 680
Tehachapi, Cal. *C. S. Chitwood*..... 683
Visalia, Cal. *Norman A. Huth*..... 677
Wascoe, Cal. *Tipton Mathews*..... 675
Stream Pollution, Biological Indicators of Intensity of—. *M. S. A. Campbell*... 123

Tehachapi Sewage Treatment Plant. *C. S. Chitwood*..... 683
Three Years Experience with Rating Sewage Treatment Works Operators' Annual Reports. *Stanley T. Barker*... 522

Urbana and Champaign Sanitary District Annual Report. *C. V. Erickson* 694

Visalia Sewage Treatment Plant. *Norman A. Huth*..... 677
Volatile Matter from 'Round About..... 895

Wascoe, Cal. Sewage Treatment Plant. *Tipton Mathews*..... 675

EDITORIALS

Activated Sludge Research in the Laboratory..... 551
Annual Reports..... 700
Industrial Waste Symposium..... 904
International Relations in Sewage Disposal..... 136
Sludge Disposal at Minneapolis, Buffalo and Chicago.....1089
Water Pollution in the United States.... 320

PROCEEDINGS OF LOCAL ASSOCIATIONS

Arizona Sewage and Water Works Association..... 705
California Sewage Works Association.
Eleventh Annual Spring Conference.... 702
Central States Sewage Works Association.
Twelfth Annual Meeting.....1091
Federation of Sewage Works Associations.
Members of Federation and Subscribers to the Journal..... 349
Minutes of Annual Meeting..... 323
Non-Association Subscribers..... 396
Officers of Local Assn..... 345
Secretary-Treasurer's Report..... 328
Georgia Water and Sewage Association.
Seventh Annual Water and Sewage School..... 141
Kansas Water and Sewage Works Association.
Twelfth Annual Meeting..... 556
Maryland-Delaware Water and Sewerage Association.
Thirteenth Annual Conference..... 909
New England Sewage Works Association.
Tenth Anniversary Spring Meeting.... 556
Tenth Annual Fall Meeting.....1093
New York State Sewage Works Association.
Eleventh Annual Meeting..... 144
Spring Meeting..... 707
Fall Meeting.....1095
North Dakota Water and Sewage Works Conference.
Tenth Annual Convention..... 140
Oklahoma Water and Sewage Conference.
Fifteenth Annual Meeting..... 552
Pacific Northwest Sewage Works Association.
Fifth Annual Convention..... 907
Pennsylvania Sewage Works Association.
Thirteenth Annual Conference..... 906
South Dakota Water and Sewage Works Conference.
Fourth Annual Meeting..... 138
Texas Section, S. W. W. A., Sewage Division.
Twenty-first Annual Meeting..... 554
Wisconsin Sewage Works Operators' Conference..... 557

REVIEWS AND ABSTRACTS

Acheres, France. Sewage Purification in the Parisian Area. Construction of a Biological Sewage Treatment Works at—. *F. Pouquet*..... 719
Aerodynamics of Trickling Filters. *Edgar L. Piret, Charles A. Mann and H. Orin Halvorson*..... 916
Annual Report, City of Johannesburg. *E. J. Hamlin*..... 566
Annual Report of the Commission for Pollution and Government Institute of Sewage and Waste Purification, Years 1936 and 1937. *H. Kessener*..... 154
Annual Report on the Sewage Purification Works for the Year Ended May 31, 1938, Corporation of Glasgow, Scotland. *Alexander Hunter*..... 336
Application of Fluorescent Indicators to the Acidimetry of Trade Effluents. *Denis Dickinson*.....1101
Artificial Lake for the Purification of River Water at Glauchau, Saxony. *Georg Weicker*..... 716

Bacteria Beds, The Rôle of Macro-Organisms in—. *T. B. Reynoldson*.... 709
Biochemical Oxygen Demand, Uses and Abuses of the—. *M. Starr Nichols*... 918
Biologic Filters for a Sewage Plant, Rapid —. *Harry A. Jenks*..... 915
Biology of Sewage Purification, The—. *T. G. Tomlinson*..... 710
Boston, Report of the Special Commission Investigating Systems of Sewerage and Sewage Disposal in the North and South Metropolitan Sewerage Districts and the City of—..... 713

Brewery Industry, A National Survey of the—. 723
Brewery Wastes. *Eustachius Stecher*. 720
Brewery Wastes. *F. W. Mohlman*. 721

Cairo, The Sewage Disposal System of—. *C. Hammerton*. 717
Cheese Factory Waste Treatment by the Guggenheim Process. *E. F. Eldridge*. . 710
Cheltenham's Remodelled Sewage Disposal Works. *G. Gould Marsland*. 1100

Denver, Colo., Sewage Disposal at—. *E. B. Black*. 153
Design, Construction and Operation of the Melbourne Sewerage System. *E. F. Bovrie*. 566
Detroit Primary Treatment Plant Nears Completion. *Arthur B. Morrill*. 336
Detroit Sewage Treatment Plant, The—. *Clarence W. Hubbell*. 152, 337
Dilution of Crude Sewage, The—. *John Finch*. 710
Disposal of Air-Dried Sewage Sludge as a Manure. *J. W. Finch*. 559
Disposal of Milk Wastes and Milk By-Products. *Dewi Davis*. 150
Dissolved Oxygen, Determination of—. *C. C. Ruchhoft, W. Allan Moore and O. R. Placak*. 338
Dissolved Oxygen, Determination of—, in Aqueous Solutions. *G. A. Perley*. 917

Effects of Industrial Wastes and Sewage on Shell Fish and Fin Fish. *L. M. Fisher*. 151
Experiments on the Treatment of Cannery Wastes. *Anonymous*. 339

Fill and Draw Sedimentation Plant for Tannery Waste, A—. *E. F. Eldridge*. 711
Filters, The Purification of Sewage on Covered—. *J. Hurley and M. Lovett*. . 146
Final Report on Incinerator Acceptance Tests, Minneapolis-St. Paul Sanitary District. *Geo. J. Schroepfer*. 922

Glasgow, Scotland, Annual Report on the Sewage Purification Works for the Year Ended May 31, 1938, Corporation of—. *Alexander Hunter*. 336
Glauchau, Saxony, Artificial Lake for the Purification of River Water at—. *Georg Weicker*. 716
Guggenheim Process, Cheese Factory Waste Treatment by the—. *E. F. Eldridge*. 710

Handbook on Sewage Disposal. *Karl Imhoff*. 723
Holland, Annual Report of the Commission for Pollution and Government Institute of Sewage and Waste Purification, Years 1936 and 1937. *H. Kessener*. 154

Industrial Waste Treatment Processes and Plant Design. *E. F. Eldridge*. . 562

Industrial Wastes
Application of Fluorescent Indicators to the Acidimetry of Trade Effluents. *Denis Dickinson*. 1101
Brewery Wastes. *Eustachius Stecher*. . . . 720
Brewery Wastes. *F. W. Mohlman*. 721
Cheese Factory Waste Treatment by the Guggenheim Process. *E. F. Eldridge*. . 710
Disposal of Milk Wastes and Milk By-Products. *Dewi Davis*. 150
Effects of Industrial Wastes and Sewage on Shell Fish and Fin Fish. *L. M. Fisher*. 151
Experiments on Treatment of Cannery Wastes. *Anonymous*. 339
Fill and Draw Sedimentation Plant for Tannery Waste. *E. F. Eldridge*. 711
Industrial Waste Treatment Processes and Plant Design. *E. F. Eldridge*. . . . 562
Neutralization of Acid Trade Effluents. *J. McNicholas*. 559
Oxalic Acid from Sulfite Waste Liquor. *T. J. Skewes and H. K. Benson*. 921
Purification of Dairy Waste Waters. *N. W. Barritt*. 560
Some Chemical and Bacteriological Properties of Trade Wastes Containing Chromates. *H. E. Monk*. 1099
Some Chemical and Bacteriological Properties of Trade Wastes Containing Chromium. *H. E. Monk*. 920
Trade Effluents. Past and Present Legislation. *John Hurley*. 344
Treatment of Chromium Plating Wastes. *J. H. Spencer*. 920
Treatment of Red Beet, Tomato and Squash Waste. *E. F. Eldridge*. 712

Johannesburg, City of—. Annual Report. *E. J. Hamlin*. 566

Kessener Brush Aeration Process. *A. R. Ward*. 332

Manchester, City of—, Rivers Department. 147
Melbourne Sewerage System, Design, Construction and Operation of the—. *E. F. Bovrie*. 566
Milk Wastes and Milk By-Products, Disposal of—. *Dewi Davis*. 150
Minneapolis-St. Paul Sanitary District, Final Report on Incinerator Acceptance Tests—. *Geo. J. Schroepfer*. . . . 922

National Survey of the Brewery Industry, A—. 723
Neutralization of Acid Trade Effluents. *J. McNicholas*. 559

Oxalic Acid from Sulfite Waste Liquor. *T. J. Skewes and H. K. Benson*. 921

Pollution and the Pocketbook. *Seth G. Hess*. 913
Present Trend in Sewage Purification, The —. *H. T. Calvert*. 340
Purification of Dairy Waste Waters. *N. W. Barritt*. 560
Purification of Sewage on Covered Filters, The—. *J. Hurley and M. Lovett*. 146

Rapid Biologic Filters for a Sewage Plant. *Harry A. Jenks* 915
Report of the (British) Water Pollution Research Board for the Year ended 30th June, 1938. (With Report of the Director of Water Pollution Research) 1097
Report of the Special Commission Investigating Systems of Sewerage and Sewage Disposal in the North and South Metropolitan Sewerage Districts and the City of Boston 713
Review of Progress in Sewage Treatment. *W. D. Haworth* 343
Rôle of Macro-Organisms in Bacteria Beds, The—. *T. B. Reynoldson* 709

Settling Tanks. Some Recent Developments in—. *H. Lorain Folkes* 149
Sewage, The Dilution of Crude—. *John Finch* 710
Sewage Disposal at Denver, Colo. *E. B. Black* 153
Sewage Disposal, Handbook on—. *Karl Imhoff* 723
Sewage Disposal Schemes. *Lawrence J. Ball* 334
Sewage Disposal System of Cairo, The—. *C. Hammerton* 717
Sewage Purification in the Parisian Area. Construction of a Biological Sewage Treatment Works at Acheres. *F. Pouquet* 719
Sewage Purification, Present Trend in—. *H. T. Calvert* 340
Sewage Purification, The Biology of—. *T. G. Tomlinson* 710
Sewage Sludge, Disposal of Air-Dried—, as a Manure. *J. W. Finch* 559
Sewage Treatment, A Review of Progress in—. *W. D. Haworth* 343
Sewers, Ventilation of—. *L. B. Escritt* 914
Some Chemical and Bacteriological Properties of Trade Wastes Containing Chromates. *H. E. Monk* 1099
Some Chemical and Bacteriological Properties of Trade Wastes Containing Chromium. *H. E. Monk* 920
Some Recent Developments in Settling Tanks. *H. Lorain Folkes* 149
System Activated Sludge/Oxygenated Water, The—. *Denis Dickinson* 1102

Taschenbuch der Stadtentwässerung. *Karl Imhoff* 723
Technologie des Wassers. *F. Sierp, A. Splittgerber and H. Holthofer* 724
Trade Effluents. I. Past and Present Legislation. *John Hurley* 344
Trade Waste Waters, Treatment and Disposal of Sewage and—, and Prevention of River Pollution. *A. Parker* 342
Treatment and Disposal of Trade Waste Waters and Prevention of River Pollution. *A. Parker* 342
Treatment of Chromium Plating Wastes. *J. H. Spencer* 920
Treatment of Red Beet, Tomato and Squash Waste. *E. F. Eldridge* 712
Trickling Filters, Aerodynamics of—. *Edgar L. Piret, Charles A. Mann and H. Orin Halvorson* 916

Ventilation of Sewers. *L. B. Escritt* 914

Water Pollution Research Board, Report of the (British) —, for the Year ended 30th June, 1938. (With Report of the Director of Water Pollution Research) 1097